SQUAKBOX

Issaquah Amateur Radio Club

Volume 41, No. 8 | Issaquah, Washington | August 2019

Historic 2-Meter Transatlantic Contact Reported

D41CV on Cape Verde Islands and FG8OJ in Guadeloupe spanned the Atlantic Ocean on 2 meters for the first time on June 16, according to reports. The distance was 3,867 kilometers (2,397.5 miles). The historic contact was made on 144.174 MHz using FT8 mode.

"The mode of propagation was most likely marine ducting, with the signal traveling in a layer near the ocean surface," said John Desmond, EI7GL, who was among those posting information on the contact. Mark De Munck, EA8FF, was at the helm of D41CV, the Monteverde Contest Team club station, off the coast of Africa. He used the beacon antenna at the station, as the so-called "Pinocchio Yagi" was down for repair. Bert Demarcq, FG8OJ, was on the other end of the contact.

"Now that this historic contact has been made, more 144 MHz contacts across this part of the Atlantic are sure to follow," Desmond said.

The initial contact does not qualify for the Brendan Trophies and Brendan Shields awards, because they require a valid contact to be made between Europe and the Americas on 2 meters. The distance covered, however, was greater than the distance between Ireland and Newfoundland.

"We continue to write a part of the history and to push barriers further away," a post on the D4C VHF & Up Facebook page said. – ARRL Letter, 6/20/2019 - **S**

Also . . .

August Program

HFp Antenna & Fox Delta Analyzer

John MacDuff KA7TTY will demonstrate assembling the Ventenna HFp Antenna for 20 M in the meeting room and tuning it.

Future programs are as follows:
Sept - Antenna Optimization K7DRQ
Oct - open

Contact Joe KF7BMD 425-985-1562 to volunteer.

Morse Code is Still a Hit

The music lyrics website Genius came up with an ingenious way of determining if other sites -- specifically Google -- had been lifting song lyrics directly from its site and reposting them without permission. According to the Wall Street Journal, starting in 2016, Genius strategically placed both straight and curly apostrophes in their rendering of a song's lyrics. When converted into Morse code,

(Continued on page 3)

At the last meeting . . .

July 10, 2019

Our July meeting was a picnic at Confluence Park in downtown Issaquah. Rod Johnson WE7X demonstrated a “Slinke” antenna and the change in its VSWR as it was stretched to different lengths even though the actual conductor length remained constant. Very interesting. Thank goodness for the shelter as we did experience everything from sun shine to light showers to downpour.

It was a fun time with lots of good conversation and good food.

No Consensus Reached for FCC on "Symbol Rate" Issues

ARRL-initiated efforts for rival parties to reach consensus on issues raised in the so-called "Symbol Rate" proceeding have ended. In April, the FCC granted ARRL's request for a 90-day hold in the proceeding, FCC Docket WT 16-239, to provide an opportunity for ARRL to lead an effort to determine whether consensus could be reached on some or all of the issues that commenters raised in the FCC's proceeding. The FCC already has issued a Notice of Proposed Rulemaking in WT 16-239, which stemmed from ARRL's rulemaking petition RM-11708.

Discussions were since widened to include issues raised in another Petition for Rule Making, RM-11831, filed by Ron Kolarik,

(Continued on page 4)

E-Mail Elmer

Got a HAM radio question and can’t find an Elmer to talk to? Just send your question by E-Mail to our E-Mail Elmer at: Elmer@w7bi.com - *Ed.* - **S**

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Tuning Electrically Short Antennas for Field Operation

An article,"Tuning Electrically Short Antennas for Field Operation," by two well-known amateurs, appeared in Microwave Journal. Authored by QEX Editor Kai Siwiak, KE4PT, and award-winning researcher Ulrich Rohde, N1UL, the article points out that both Amateur Radio and military applications exist for 20 W battery -powered radios equipped with whip antennas. "In general, the whip antenna [that] makes the radio portable is not optimized for signal propagation: A whip antenna has no ground return or

Rohde's al fresco test stand for short HF antennas. [Photo courtesy of Ulrich Rohde, N1UL]

proper counterpoise," the article notes. "While some users drag a

(Continued on page 4)

Pennsylvania Radio Amateur Dies in Tower Installation Mishap

Well-known northeastern Pennsylvania radio amateur Leland L. "Lee" Parsons III, N3LPJ, lost his life on June 14 during a ham tower installation project when a tower section he was working on collapsed off State Route 2069 in Gibson Township. Authorities said Parsons, 62, was apparently attempting to attach a guy wire to the bottom tower section when it went over. An ARRL member, Parsons was the president of the Susquehanna County Amateur Radio Club.

From WNEP TV16 video

The online Wireless Estimator called the incident "a stark reminder of the dangers present this weekend during Field Day." The article cited a 2009 Field Day tower collapse that claimed the life of 57-year-old Larry Prelog, KE4PM -- an experienced climber -- while he was installing an antenna. In that incident, two legs at the base of the tower buckled.

The Wireless Estimator article also recalled the death of the Reverend Paul Bittner, W0AIH, 84, a well-known radio amateur, contester, and Field Day participant, who lost his life last October when he fell from one of the towers at his extensive antenna farm in Wisconsin. – ARRL Letter, 6/20/2019 - **S**

Morse Code

Cont.

the rigged punctuation spells out the words "red handed." Genius claims it's uncovered more than 100 instances where Google used Genius's own lyrics in Google search results.

"Over the last two years, we've shown Google irrefutable evidence again and again that they are displaying lyrics copied from Genius," Genius's chief strategy officer Ben Gross told the Wall Street Journal. "We noticed that Google's lyrics matched our lyrics down to the character."

The Wall Street Journal corroborated the accusations by matching the results of three songs randomly chosen from the list of 100 instances. Google denied the allegations through its partnership with LyricFind, which provides the search engine with lyrics through a deal with music publishers. "We do not source lyrics from Genius," LyricFind Chief Executive Darryl Ballantyne said. -- Thanks to Rolling Stone and other media reports – ARRL Letter, 6/20/2019 - **S**

FAA to Make Changes to Recreational Drone Flying Requirements

The FAA Reauthorization Act of 2018 includes changes to recreational drone flying in the US. Radio amateurs have used drones to inspect antenna systems and terrain and to carry support lines aloft, as well as for other purposes. The FAA considers those who fly their drones for fun as recreational users. The FAA Reauthorization Act of 2018 describes how, when, and where owners may fly drones for recreational purposes. These broad guidelines should apply to most Amateur Radio users of drones.

Register as a "modeler." A registrant must be at least 13 years old and a US citizen or legal permanent resident.

- Label your model aircraft with your registration number.
- Fly only for recreational purposes.
- Follow the safety guidelines of a community-based organiza-

(Continued on page 5)

Tuning Cont.

wire of up to 8 meters behind, this is not an ideal solution."

As the article explains, electrically short antennas -- typically 0.1 Î» or shorter -- look like a capacitor, with a typical capacitance of 25 pF per meter of length. "At 2 MHz, where the wavelength is 150 meters, an inductor of 84 Î¼H is required for resonance," the article says. But just getting a good VSWR is not all there is to it.

Rohde told ARRL that loading coil placement in a short vertical antenna is critical, and "the greater the elevation of the coil, the better the radiation. He said that "center loading" -- he considers the "best compromise" to be more on the order of two-thirds' loading -- can dramatically affect both the antenna's transmitting and receiving performance, as opposed to base loading, as found with popular so-called screwdriver antennas. Radials of some sort also are essential.

As the article points out, "With center loading, both the radiation resistance and integrated surface are larger, which are better for radiation." Inductors are the lossy components of an antenna tuner, while capacitors "are infinitely better." The authors conclude that, for optimal operation, antenna radials should be 0.25 Î», with one sufficient for tuning, and up to four producing a symmetrical azimuth. "Connecting the HF radio ground to a large metallic object is a good choice," the article said.

Ulrich told ARRL that optimizing an antenna in the manner the article describes will produce "significantly better" signal reception, although a short antenna will also have a narrower bandwidth. The objective should not be to get a good VSWR but to keep in mind that there's a difference between resonance and radiation.

"These requirements for optimum antenna performance make HF manpack radios somewhat complicated and unattractive," the authors concede. "Nonetheless, the well matched and radiating antenna provides the most success, and some of these highly portable radios provide vital communications in disaster areas -- recently in Puerto Rico and South Florida. – ARRL Letter, 6/13/2019 - **S**

FAA to Exclude Most Amateur Radio Towers from Marking Requirements

Thanks to action taken in 2017 and 2018 by ARRL, the bill's original language was amended to the extent that amateur towers, as well as residential towers used for over-the-air TV reception, were effectively exempted from marking requirements. The topic was addressed at the annual "Ham Radio and the Law" forum at the Dayton Hamvention® this past May. Some key points from that presentation: (1) Towers covered by the rules are structures at least

(Continued on page 6)

Symbol Rate Cont.

K0IDT, that seeks, "to ensure Amateur Radio digital modes remain openly decodable and available for monitoring" by the FCC and by other third parties, including other radio amateurs. His petition also aims to limit Automatically Controlled Digital Stations (ACDS) to identified subbands on HF, to reduce interference. Last month, ARRL filed an interim report with the FCC summarizing its efforts to bring all sides to the table, and on June 28, ARRL requested an additional 60-day pause to pursue promising talks.

"In seeking the delay, it was the ARRL's intent to facilitate discussions between the opposing parties in an effort to explore the possibility of an agreed resolution that would better protect users of the Amateur Radio spectrum from interference and would permit all members of the Amateur Radio service to continue to contribute to the advancement of the radio art," ARRL Washington Counsel David Siddall, K3ZJ, said, summarizing the situation in a July 15 letter to the FCC. "The end purpose, if a binding agreement between the opposing parties could not be reached, was to provide the strongest possible basis for the ARRL to file its recommendations on a fair and equitable resolution of the issues."

Siddall said that despite difficulties "partially attributable to the passions of the respective parties," ARRL was able to schedule meetings with both sides and, eventually, facilitate joint discussions

(Continued on page 7)

Petition for Rulemaking Asks FCC to Create a New 8-Meter Amateur Band

The FCC has put on public notice for comment a Petition for Rulemaking (RM-11843) that seeks the creation of a new 8-meter Amateur Radio allocation on a secondary basis. The Petition suggests the new band could be centered on an industrial-scientific-medical (ISM) segment somewhere between 40.51 and 40.70 MHz. The spectrum between 40 and 41 MHz is currently allocated to the Federal Government and, as such, within the purview of the National Telecommunications and Information Administration (NTIA). ARRL member Michelle Bradley, KU3N, of Maryland, filed the Petition in May on behalf of REC Networks, which she founded and described in the Petition as "a leading advocate for a citizen's access to spectrum," including Amateur Radio spectrum.

"REC feels that the time is right for the Commission to open a Notice of Inquiry and eventually a Notice of Proposed Rulemaking, and in cooperation with the NTIA, this new band opportunity can be realized to spark the next generation of 'makers' in the fields of science, technology, education, and math (STEM), especially women and girls," Bradley told the FCC in the Petition. "The more opportunities we give to make things, the more opportunities we have to build a pool of experts in STEM, right here at home."

The Petition said the objective of a new band would be "an effort to foster experimentation into the propagation characteristics of this band midway between the 10- and 6-meter bands." An allocation in the 8-meter band is available to radio amateurs in Ireland, where the Irish Radio Transmitters Society has developed a band plan for 40 - 41 MHz.

"REC perceives this spectrum can be used for weak signal experimentation and eventually general amateur use, especially along transatlantic paths using CW, SSB, digital modes such as FT8 and digital voice," the Petition said. "As no radios are mass-produced for this band at this time, this opens up new opportunities for 'makers' to construct transmitters, receivers, and antenna systems that can be used in this spectrum."

REC anticipates "very low" usage of the new band, "with peak usage around sporadic-E episodes, operating events such as ARRL Field Day, and VHF contests, as well as during the peak of sunspot cycles," Bradley told the Commission. "[W]e feel that the sharing of 40 MHz can be accomplished in a manner that serves the needs of the Amateur Radio Service while meeting the organizational missions of Federal Government agencies that utilize this spectrum."

Interested parties may file short comments on RM-11843 via the FCC's Electronic Comment Filing Service (Express). – ARRL Letter, 6/27/2019 - **S**

Drone Cont.

tion (see below).

- Fly your drone at or below 400 feet when in uncontrolled or Class G airspace, and do not fly it in airspace where flight is prohibited.
- Keep your drone within your line of sight or within the line-of-sight of a visual observer who is co-located and in direct communication with the operator.
- Never fly near other aircraft, especially near airports.
- Never fly over groups of people, public events, or stadiums full of people.
- Never fly near emergencies such as any type of accident response, law enforcement activities, firefighting, or hurricane recovery efforts.
- Never fly under the influence of drugs or alcohol.

Recreational flyers who intentionally violate any of these safety requirements and/or operate in a careless and reckless manner could be liable for criminal and/or

(Continued on page 6)

Historic Amateur Radio Contact via Moon-Orbiting Satellite Reported

A contact between radio amateurs in Germany and China took place on July 1 via the moon-orbiting LO-94 satellite, DSLWP-B, launched in May 2018. The two-way exchange between Reinhard Kuehn, DK5LA, in Sorup, Germany, and Harbin Institute of Technology club station BY2HIT (operated by Wei Mingchuan, BG2BHC), in Harbin, China, occurred between 0551 and 0728 UTC, according to reports. The GMSK-to-JT4G repeater onboard DSLWP-B was used to make the contact, the first ever via a lunar-orbiting repeater.

"Using the GMSK-to-JT4G repeater is not easy, in terms of the signal power needed for the uplink," commented radio amateur and engineer Daniel Estévez, EA4GPZ, whose blog includes images of the lunar surface downloaded via DSLWP-B. "There were plans to make a QSO between BY2HIT and Reinhard since many months ago, but previous attempts didn't work out. My congratulations to the people at both sides of the QSO, who have achieved it a month before DSLWP-B crashes against the lunar surface."

As Estévez explained it, the GMSK-to-JT4G repeater works by sending commands to the satellite that embed a 13-character message, using the same frequency and a similar protocol to the one that commands the camera and other satellite functions. He said sending a message in this fashion takes a little longer than 1 minute.

An open telecommand protocol allows radio amateurs to take and download images, and DSLWP-B transmitted images of the moon and Earth during this week's solar eclipse. DSLWP-B was launched as a secondary payload with the Quequiao relay satellite as part of the Chang'e 4 mission to the far side of the moon.

DSLWP stands for "Discovering the Sky at Longest Wavelengths Pathfinder," and was designed to

(Continued on page 7)

Tower Cont.

50 feet tall that support an antenna and are located in a rural area or on farmland or immediately adjacent to such land. (2) According to the Act, the term "covered tower" does not include any structure that is adjacent to a house, barn, or other building, and "is within the curtilage of a farmstead or adjacent to another building or visible structure." ARRL Regulatory Information Manager Dan Henderson, N1ND, explains that, while a few Amateur Radio towers will fall under the Act's marking requirements and will have to be registered, towers in residential yards or within farmland are specifically exempted. – ARRL Letter, 7/19/2019 - **S**

Drone Cont.

civil penalties. Read the Authorization for limited recreational operations as described in Section 44809 (PDF). All limited recreational operations should be conducted in accordance with this authorization.

For more information, read Advisory Circular 91-57B.

The FAA is upgrading the online system, known as LAANC (the Low Altitude Authorization and Notification Capability), so that recreational operations can get automated airspace authorizations to fly in controlled airspace.

The new law also will require that drone operators pass an online aeronautical knowledge and safety test and carry proof of test passage. The FAA is developing the test in consultation with stakeholders. Recreational flyers would have to pass the test, which could be administered electronically. The FAA will provide additional guidance and will notify when the test is available. The FAA also will issue guidance for how it will recognize community-based organizations.

More detailed information about the FAA's plan to fully implement the requirements of Section 349 of the FAA Reauthorization Act of 2018 is available in the Federal Register. – ARRL Letter, 7/11/2019 - **S**

Symbol Rate
Cont.

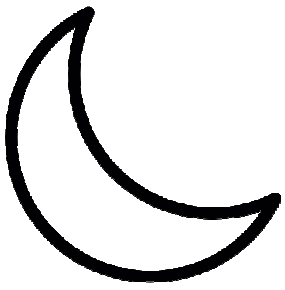
among the respective parties.

Siddall said in his letter, "At the beginning of our meetings there emerged consensus on the issues to be discussed. By the end, the parties had reached consensus on some of the issues, but not all. Despite our best efforts, some of the parties did not agree to submit to the Commission any of the recommendations on which there had been an apparent consensus, having negotiated with an 'all or nothing' approach."

Despite the disappointing conclusion, Siddall expressed confidence that a better understanding of issues and positions of the various interests exists among all of the parties who participated in the in-person meetings and teleconferences, and that this will have an overall positive effect upon the outcome of the proceeding. – ARRL Letter, 7/18/2019 - **S**

Moon Satellite
Cont.

test low-frequency radio astronomy and space-based interferometry. The repeater uplink is on 2 meters and the downlink is on 70 centimeters. – ARRL Letter, 7/11/2019 - **S**



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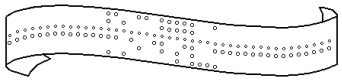

DE KA7TTY

Hello again, It is really Summer this time. Seafair will be over by the time of our meeting and the Blue Angles will have gone back home.

There is still time for that antenna project, but you know what they say. Antennas do best when they are put up in the rain !! Hi hi.

Looks like a couple more conventions and gatherings before it is back into the Fall, so take advantage of the good weather.

Maybe it is time to think about the Summits on the Air (SOTA). This is great weather for that too. But don't over do it. Search and rescue is busy enough with people who do too much.

Sounds like you all had a good Field Day. Sorry I couldn't be there, but I had a good time with the BEARS (That was the first time in 34 years I have been able to do FD with them). I hope to get the low down on you event at our meeting.

OK. Here we go. Take care and 73.See you at the meeting, John KA7TTY

New Device Creates Electricity from Snowfall

UCLA reports that researchers and colleagues there have designed a new device that creates electricity from falling and fallen snow. The first-of-its-kind device is inexpensive, small, thin, and flexible like a sheet of plastic.

"The device can work in remote areas, because it provides its own power and does not need batteries," said senior author Richard Kaner. "It's a very clever device -- a weather station that can tell you how much snow is falling, the direction the snow is falling, and the direction and speed of the wind."

The researchers call it a snow-based triboelectric nanogenerator, which generates charge through static electricity and produces energy from the exchange of electrons.

Findings about the device are published in the journal Nano Energy.

"Static electricity occurs from the interaction of one material that captures electrons and another that gives up electrons," said Kaner. "You separate the charges and create electricity out of essentially nothing."

Snow is positively charged and gives up electrons. Silicone -- a synthetic rubber-like material composed of silicon and oxygen atoms, combined with carbon, hydrogen and other elements -- is negatively charged. When falling snow contacts the surface of silicone, that produces a charge that the device captures, creating electricity.

"While snow likes to give up electrons, the performance of the

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SQUAKBOX
This newsletter is published monthly for the members of the Issaquah ARC W7BI. Items for publication must be received by the 15th day of the month preceding publication. Send items to:
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The IARC is affiliated with the American Radio Relay League (ARRL). Visit our WEB page at: http://www.w7bi.com

Membership is open to anyone regardless of age, sex, race, national origin, religion, or amateur radio license status. Dues are $15 per year for a family membership, free for those under 19 years of age.

A two-month courtesy mailing of this newsletter will be made to meeting visitors and others upon request.

– Coming Events –

- **August 7** - Monthly Issaquah ARC meeting at the Issaquah Senior Citizens Center, 75 NE Creek Way, Issaquah. Doors open at 6:45 PM, the meeting begins promptly at 7:00 PM and the program begins at 8:00 PM. Refreshments are provided.
- **August 9-11** - 64th Annual Pacific Northwest DX Convention. Everett, WA. http://pacificnwdxconvention.com/
- **August 25** - Issaquah Communications and Support Team meeting, Issaquah Public Works, Issaquah, talk-in 146.56 MHz at 6:45 PM, Meeting at 7:00 PM.
- **September 4** - Monthly Issaquah ARC meeting. See Aug 7 for time and location.
- **September 6-8** - 20th Northwest APRS/Digital Summer Gathering. Valley Camp, North Bend, WA. https://wa7vc.org/summergathering/2019
- **September 21** - N7YRC Tailgate Swap and Shop. Yakima County EOC parking lot, 2403 S 18th Street, Union Gap, WA. Contact: Rod Rath, KC7VQR: rrath@charter.net

Snowfall Cont.

device depends on the efficiency of the other material at extracting these electrons," said co-author Maher El-Kady, a UCLA assistant researcher of chemistry and biochemistry. "After testing a large number of materials including aluminum foils and Teflon, we found that silicone produces more charge than any other material."

Hiking shoe with device attached. [Abdelsalam Ahmed for UCLA, photo]

About 30 percent of the Earth's surface is covered by snow each winter, during which time solar panels often fail to operate, El-Kady noted. The accumulation of snow reduces the amount of sunlight that reaches the solar array, limiting the panels' power output. The new device could be integrated into solar panels to provide a continuous power supply when it snows, he said. – ARRL Letter, 6/27/2019 – **S**

LoTW Updated: FT4 contacts for Digital WAS Award

This follows the WSJT-X Development Group's July "general availability" release of WSJT-X 2.1.0. No other endorsements are under consideration at this time. LoTW users are currently able to upload all FT4 contacts they have made. While the FT4 Digital WAS Award Endorsement functions are now active, award processing and fulfilment remain pending the availability of the new endorsement sticker. Watch ARRL News for this and other updates. - ARRL Letter, 7/25/2019 - **S**